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Foreign Agricultural Service
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COTTON IN SYRIA



FOREWORD

This report presents an analysis of current trends in the cotton economy of Syria, one of the world's leading cotton producing countries. It is one in a continuing series of studies by the Cotton Division, Foreign Commodity Analysis, to provide basic information on what is happening in countries that have a major influence on world cotton markets.

The author expresses his appreciation to the directors and staff members of the Cotton Bureau and Cotton Marketing Organization of Syria, as well as to other Syrian officials, who generously supplied information and kindly answered his many questions. Their arrangements, which made it possible for him to see how cotton is grown, ginned, and marketed in Syria, were most helpful. The author also thanks the Agricultural Attaché and members of the Economic Commercial Office at the U.S. Embassy in Damascus for their contributions and assistance.

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COTTON IN SYRIA

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FC By Robert B. Evans
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SUMMARY AND OUTLOOK

Syria was the 10th largest producer of cotton in the world in 1976/77 and the fourth largest exporter. Cotton is Syria's most important cash crop and, until superseded by petroleum in 1974, was Syria's most important earner of foreign exchange.

Cotton production in Syria rose rapidly from 13,000 metric tons in 1949 to a peak of 180,000 tons (60,000 to 825,000 bales of 217.7 kg or 480 lb net) in 1965. Land reform and nationalization of gins and marketing brought on an abrupt loss of nearly one-third of the output in the next 2 years. Thereafter there was some recovery and since 1968 production has hovered around 150,000 tons (700,000 bales) annually.

Practically all Syrian cotton is now irrigated and, although the area in cotton has fallen in the last few years, irrigated yields have been climbing rapidly—from 630 kilos per hectare in 1970 to 896 in 1976 (562-799 lb per acre). Largely responsible for this accomplishment was the development of a new variety, Aleppo 1, which is tolerant to verticillium wilt.

Syrian cotton is under almost complete Government control. The Government specifies how much land each farmer can plant to cotton and other crops, and sells him the variety of cotton he is required to grow and the quantity of fertilizer he is to use. When the crop is grown, the farmer sells his cotton at an officially set price to a Government agency that gins the cotton and is the sole seller for export and for domestic consumption. All cotton spinning mills are owned by the Government. With minor exceptions, however, all cotton in Syria is grown by private farmers, either by themselves or under sharecropping arrangements.

The cost of producing cotton appears to be somewhat higher in Syria than under irrigated conditions in the United States. Labor, fertilizer, and irrigation costs are higher, but ginning and machinery costs are lower.

Syria imported \$331 million worth of food and other agricultural commodities in 1975. Syrian Government policy is to encourage food production at home and to place less emphasis on cotton, despite the high world prices for cotton that prevailed early in 1977. Prices paid farmers for cotton in Syria in 1976 and early 1977 lagged behind the world market. On the other hand, Syrian price supports for grains,

soybeans, and sugar beets were up to double the prices being paid farmers for these commodities in the United States.

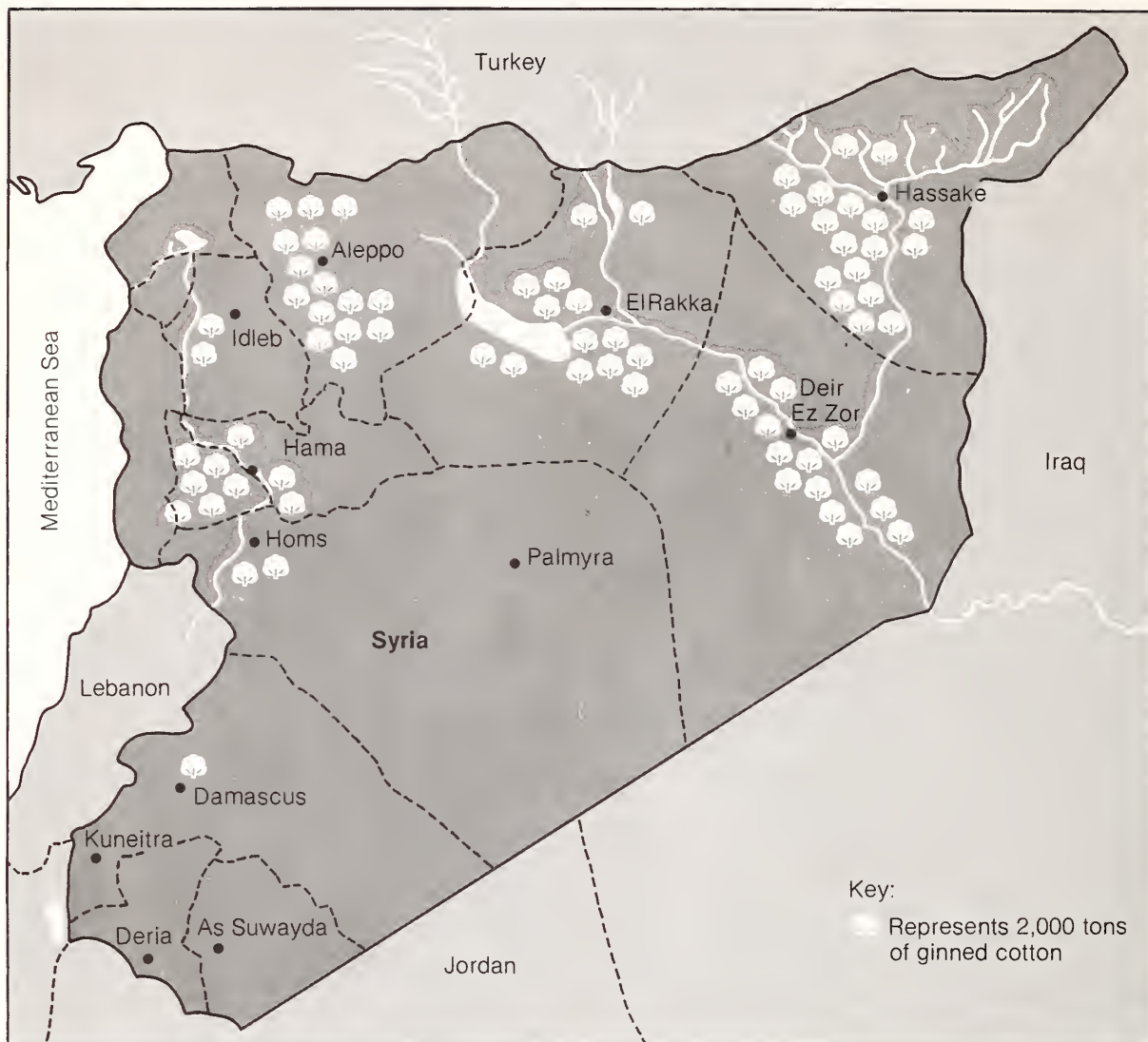
For 1977, official projections called for a 6-percent cutback in cotton area, with some of the displaced cotton land going to sugar beets to supply newly built processing plants. Plans are to gradually reduce the area in cotton through 1978/79 but to recover the loss through higher yields. Syria will eventually be able to double its present irrigated area in all crops with water from the Al Thawra Dam on the Euphrates, completed in 1976, but it will take many years to develop canals and other irrigation facilities and to determine how the land should be used. Plans are to emphasize food crops at first, but in another 5 years to give some of the new land to cotton.

Syria produces high-quality Upland cotton, largely Middling or better in grade, and largely 1-3/32" in staple length. Farmers are rewarded according to the quality of cotton they produce. All Syrian cotton is handpicked but labor costs are rising and experiments are being made with mechanical pickers. The present basin irrigation method may have to be changed, however, if mechanical picking is to be successful. The proportion of Syrian cotton that is saw-ginned has been rising rapidly and was up to 80 percent in 1975 with the remainder roller-ginned.

Syria is building several new textile mills in order to export cotton textiles rather than raw cotton. Consumption of cotton by domestic mills rose steadily from 26,000 tons (120,000 bales) in 1970 to 40,000 (184,000 bales) in 1974, but there was a setback to 36,000 in 1975 (165,000 bales). Plans call for an increase to 120,000 tons (550,000 bales) by 1980, but this goal will be difficult to achieve by then. Apparent per capita domestic supply of textiles in Syria is well above the average for the developing Near East.

Syria has been exporting upwards of 100,000 tons (500,000 bales) annually in the 1970's. Two-thirds of the total has been going to Communist countries. The USSR, which has been a major supplier of Syria's military hardware and has provided massive assistance for the Al Thawra Dam, has been the leading destination, but the People's Republic of China (PRC) jumped temporarily into first place in

COTTON GROWING AREAS OF SYRIA, 1976



1975/76. (Syria has purchased rice from the PRC.) Most of Syria's cotton exports to non-Communist countries are to Western Europe, with Italy the most important buyer.

With cotton production nearly at a standstill and domestic mill consumption rising, exports of raw cotton from Syria can be expected to decline gradually in the next few years.

TABLE 1.—SYRIA: SUPPLY AND DISTRIBUTION OF COTTON, 1950-77¹

Season beginning September 1	Production	Consumption	Export contracts	Ending free stocks ²	Production	Consumption	Export contracts	Ending free stocks ²
	----- 1,000 metric tons -----				----- 1,000 bales (480 lb net) -----			
1950	35.5	7.6	23.1	(³)	163	35	106	(³)
1951	48.0	8.5	35.9	(³)	220	39	165	(³)
1952	45.0	8.3	39.6	(³)	207	38	182	(³)
1953	47.2	8.1	39.8	(³)	217	37	183	(³)
1954	59.8	7.8	71.8	(³)	321	36	330	(³)
Average	49.1	8.1	42.0	(³)	226	37	193	(³)
1955	87.0	8.1	79.7	(³)	400	37	366	(³)
1956	92.8	9.6	81.4	1.4	426	44	373	6
1957	107.2	11.0	94.5	3.1	492	51	434	14
1958	96.5	13.9	84.9	.9	443	64	390	4
1959	97.1	12.4	84.9	.6	446	57	390	3
Average	96.1	10.0	85.1	1.4	441	51	391	5
1960	111.3	13.6	97.8	.5	511	62	449	23
1961	124.5	16.4	107.7	.9	572	75	495	4
1962	150.1	17.9	132.2	.9	689	82	607	4
1963	152.9	20.7	131.5	1.5	702	95	604	7
1964	175.6	20.8	154.5	1.8	807	96	710	8
Average	142.9	17.9	124.7	1.1	656	82	573	9
1965	180.2	21.2	160.1	.7	828	97	735	32
1966	141.5	20.7	121.5	—	650	95	558	—
1967	126.5	24.8	101.6	.1	581	113	467	(⁴)
1968	153.6	23.6	122.5	7.7	705	108	563	35
1969	149.4	23.8	133.2	.2	686	109	612	9
Average	150.2	22.8	127.8	1.7	690	104	587	15
1970	148.8	26.4	121.5	1.0	683	121	558	5
1971	157.4	34.6	121.8	2.0	730	159	559	9
1972	163.1	38.2	124.9	2.0	749	175	574	9
1973	155.5	32.6	123.4	1.5	714	150	567	7
1974	144.8	39.7	101.3	5.4	665	182	465	25
Average	153.9	34.3	118.6	2.4	708	157	545	11
1975	158.3	36.0	115.8	11.4	728	165	532	55
1976 ⁵	156.3	36.0	126.2	8.6	718	165	580	39
1977 ⁶	152.0	39.0	(³)	(³)	700	179	(³)	(³)

¹From Syrian reports to the International Cotton Advisory Committee. Original data in metric tons. Elements may not balance because of rounding. ²Unsold stocks in hands of Cotton Marketing Organization. Actual stocks, which would include stocks at mills, in transit, etc., would be somewhat higher. ³No data. ⁴Less than 1. ⁵Preliminary. ⁶Forecast.

COTTON AS A SYRIAN CROP

Commercial Importance

Although Syria is relatively small in area, it was the 10th largest producer of cotton in the world in 1976/77 and the 4th largest exporter. Cotton is Syria's most important cash crop, and next to oil, its most important source of foreign exchange, earning \$164 million in 1976. Syria is an important supplier of cotton to Western Europe, Eastern Europe, the USSR and the PRC.

Historical Background

Cotton probably was introduced into Syria from India more than 2,000 years ago. Under the Romans there was a strong demand for cereal crops and an abundance of wool, so there was not much interest in cotton. Cotton growing developed after the Arab conquest A.D. 634-636, as did cotton spinning and weaving, but receded following the Mongol conquest in the 15th century and did not recover until the beginning of the 20th century.¹ Between 1900 and 1912, cotton cultivation did not exceed 1,500 metric tons of cotton lint annually. In 1923 three commercial varieties were grown, "Lone Star," "Baladi," and "Yerli."² Before World War II production had risen to nearly 6,000 tons, but then declined during the war because of a shift to food crops. In the 1945-49 period, cotton was still a minor crop with an average production of 7,000 tons or 32,000 bales, which was largely consumed nationally in furniture, upholstery, and very coarse textiles.³

High world cotton prices and the prospect of tremendous profits caused the cotton area to explode from 25,000 hectares in 1949 to 217,000 hectares in 1951, and production from 13,000 metric tons to 48,000. Although there were a number of failures at first, cotton production thereafter continued to rise rapidly. The Cotton Bureau of the Ministry of Agriculture, which has been responsible for cotton development in Syria, was established in 1952.⁴

In 1955, the entire country was made a one-variety community. Registered seed was imported yearly from the United States to maintain the purity of the stock.⁵ At the same time investment in irrigation

pumps, fertilizer, insecticides, extension work, and gins rose rapidly. By 1962 the area peaked at 302,000 hectares and in 1965 production peaked at 180,000 tons. The rapid expansion was largely because of the upward trend in cotton acreage under irrigation and rapid rises in yields per acre under irrigation.

Under agrarian reform legislation passed in 1963, the large farms, which constituted the nucleus of cotton production, were broken up, and the land was distributed to small farmers. In May 1965, all cotton gins were nationalized, as had been all of Syria's spinning and nearly all of its weaving industries by this date. The Syrian Cotton Marketing Organization, which is the sole purchaser, ginner, and marketer of Syrian cotton, was established at this time. The Union of Spinning and Weaving Industries, a Government organization that operates the textile industry, was established in 1968.⁶

Although Syria's irrigated cotton acreage and cotton production have been somewhat lower in recent years than in 1965, yields began to recover in 1970 and since 1973 have been the highest in history.

Land Use and Climate

Syria's total land area of 18.5 million hectares is, for purpose of comparison, about a third smaller than Arizona's 29.4 million. About one-third is steppes and pastures, and 20 percent is rocky and sandy land or otherwise uncultivated or fallow.

Only 3.7 million hectares, or 20 percent, is under cultivation (table 2). This, nevertheless, is several times larger than Arizona's 506,000 hectares under cultivation. Syria's irrigated area of 516,000 hectares is, however, only moderately larger than Arizona's 477,000. Syria had more hectares in cotton in 1976—182,000 compared to Arizona's 129,000—but produced a little less cotton, 156,000 metric tons compared to 172,000.

Cotton Growing Areas

Agriculturally, Syria can be divided into three zones, western or Mediterranean Syria, the agricultural crescent, and the steppes. The latter is unimportant agriculturally except for grass growing and is used as pasture during years of good rainfall. Western or Mediterranean Syria consists chiefly of the Mohafazats or Provinces of Latakia and Tartous, and includes a coastal plain rising to a mountain range on its eastern border. These coastal Provinces have an annual rainfall of over 800 millimeters (mm) and are

¹"Cotton Bureau, Ministry of Agriculture, Republic of Syria, Presents Palmyra, Syrian Long Staple Cotton," p. 1, Aleppo, 1967.

²"CMO, 10 Years of Work," Cotton Marketing Organization, p. 10, Aleppo, September 1975.

³"The Cotton Situation in Syria," p. 6, Cotton Bureau, Aleppo, 1966.

⁴See footnote 2.

⁵"Cotton Breeding in Syria," p. 1, Dr. Abdul Rahim Shami, Director, Cotton Bureau (manuscript).

⁶See footnote 2.

TABLE 2.-SYRIA: USE OF LAND, 1964-66, 1968-75

(In thousands of hectares)

Type of land	Average 1964- 1966	1968	1969	1970	1971	1972	1973	- 1974	1975
Total area	18,559	18,518	18,518	18,518	18,518	18,518	18,518	18,518	18,518
Forests	469	469	468	468	477	518	481	446	415
Steppe and pasture	5,698	5,464	5,461	5,450	5,449	6,065	6,497	6,393	1 8,631
Rocky and sandy land, marshes, lakes, and land in bldgs. and roads	3,630	3,817	3,772	3,773	3,764	3,431	3,595	3,627	3,487
Cultivable land	8,762	8,768	8,817	8,827	8,828	8,504	7,945	8,052	1 5,955
Uncultivated	2,384	2,897	2,932	2,918	2,920	2,503	2,067	2,025	1 479
Cultivated	6,378	5,871	5,885	5,909	5,908	6,001	5,878	6,027	1 5,476
Fallow	3,128	3,216	2,397	2,610	3,092	2,897	2,481	2,493	1 1,776
Under crops	3,250	2,655	3,488	3,299	2,816	3,104	3,397	3,534	2 3,700
Irrigated	510	477	547	451	476	625	619	578	516
Nonirrigated	2,740	2,178	2,941	2,848	2,340	2,479	2,778	2,956	3,184
In crops listed below:	-	2,637	2,958	2,396	2,647	2,998	3,383	3,360	3,863
Grain	1,825	1,643	1,881	2,502	1,744	1,995	2,426	2,277	2,745
Fruits	247	279	281	259	260	291	328	345	351
Cotton	279	288	299	249	250	238	200	206	208
Irrigated	227	228	236	236	220	210	195	181	185
Nonirrigated	52	60	63	13	30	28	5	25	23
Dry legumes	203	209	245	229	216	236	241	255	223
Vegetables	-	164	152	115	129	159	128	201	200
"Industrial crops" other than cotton	31	54	100	42	48	79	60	76	86

¹ Figures changed from previous year because of reclassification of some cultivable land as steppe and pasture.
some areas of crop listed.

² As given, although author notes this figure is smaller than

Compiled from tables 6/4, 18/4, and 23/4 of Statistical Abstract, 1976, Syrian Arab Republic and earlier volumes.

TABLE 3.—SYRIA: IRRIGATED AND RAIN-GROWN COTTON AREAS BY PROVINCES, 1958, 1963, 1963, 1971-76

(In hectares)

Crop years beginning September 1	Hassakeh	Deir-ez-Zor	Rakka	Aleppo	Idleb	Lattakia	Hama	Homs	Damascus	Ghab	Total
Irrigated											
1958	18,271	61,051	(2)	55,768	(3)	3,282	37,375	16,540	4,263	(4)	199,640
1963	36,669	49,694	62,637	27,485	14,697	2,552	18,685	10,690	6,080	(4)	229,238
1971	33,527	43,365	50,300	38,178	5,603	114	11,943	7,443	4,811	25,196	220,191
1972	34,939	45,756	48,721	33,514	5,234	—	10,609	6,864	4,755	21,145	210,537
1973	35,000	44,000	48,000	31,876	5,038	—	16,698	4,142	3,600	17,015	195,393
1974	37,000	40,865	29,480	33,308	4,750	—	8,352	5,138	3,433	18,323	180,649
1975	38,000	42,628	34,887	30,000	5,175	—	7,970	4,805	3,044	18,580	185,089
1976	36,760	37,783	30,783	30,043	5,200	—	6,787	4,541	3,263	17,500	172,660
Nonirrigated											
1958	—	—	—	41,345	—	11,838	9,680	1,260	—	(4)	64,123
1963	—	—	—	22,958	17,196	10,553	8,430	6,078	—	(4)	65,215
1971	—	—	—	6,058	18,004	967	4,019	327	—	917	30,292
1972	—	—	—	8,321	13,507	652	4,597	596	—	1,000	27,673
1973	—	—	—	—	1 856	1 531	(1)	(1)	—	3,637	5,024
1974	—	—	—	8,959	9,332	327	5,040	557	—	997	25,212
1975	—	—	—	7,120	7,021	303	3,329	249	—	5,015	23,037
1976	—	—	—	4,493	3,031	—	851	254	—	467	9,096

¹ Provincial totals may not add to country totals in all years because of different sources of data. ² Included in Deir-ez-Zor up to 1960. ³ Part of Aleppo until 1960. ⁴ Was a part of Hama Province.

Compiled from Syrian Cotton Bureau's report for 2nd half of June 1977 and earlier similar reports.

well watered by rivers and springs. Principal crops are olives, tobacco, peanuts, vegetables, and citrus fruits. Formerly some cotton was grown but other crops were more profitable and cotton now is forbidden.

The agricultural crescent of Syria includes roughly the land in an arc from south of Damascus northward through Homs and Hama to Aleppo and thence to the northeast corner of Syria. This area consists for the most part of plains situated at altitudes of 400 to 800 meters above sea level with a Continental climate. Rainfall decreases from over 500 mm per year close to the mountains that extend from the Lebanese border north and northeast to Turkey, down to 200 mm farther inland. This region is largely planted to wheat, barley, legumes, and vegetables, but cotton also is important. Practically all of Syria's cotton grows from Homs northward to Aleppo and thence eastward and northeastward along the Euphrates and its tributaries to the Turkish and Iraqi borders.

The Euphrates Valley includes the three most important cotton-producing Mohafazats of Hassakeh, Deir-ez-Zor, and Rakka, which together accounted for 60 percent of Syria's total cotton production in 1975. Cotton is scattered along the Euphrates River and its tributaries. This area is slated for major agricultural expansion in the years ahead, but the irrigated cotton area has not yet recovered to the levels existing in the early 1970's, before the inundation of cotton lands by a new lake behind the Al-Thawra Dam on the Euphrates. Practically all cotton in this region is irrigated.

The Aleppo Plain, which is considered to have some of the most fertile land in Syria, surrounds the city of Aleppo in northwestern Syria, and includes the Mohafazats of Aleppo and Idleb, which account for another 20 percent of Syria's cotton. Formerly there was a substantial rain-grown cotton area in this region, but it has declined rapidly in recent years although it still accounts for most of Syria's now very limited rain-grown cotton. The irrigated area, which is generally supplied by local streams and underground water, has remained fairly stable in the last few years.

The Orontes Valley includes the Mohafazats of Homs, Hama, and Idleb, which produce another 19 percent of Syria's cotton. This area between Aleppo and Homs is largely watered from irrigation projects along the Orontes River, which rises in the mountains on the Syria-Lebanon border. The level of irrigation water in the Kattineh Lake and behind the Al-Rastan Dam is noted regularly in the Syrian Cotton Bureau's semimonthly report. The Ghab development project, for which separate cotton statistics are given, is in this valley.

The irrigated cotton area in the Orontes Valley varies from year to year, but is not as large as it was a few years ago. Drainage is an acute problem in some sections. There is also some rain-grown cotton in this area when conditions permit.

Soils

Much of the cotton area of Syria is on "grumusol" soils, described as being dark red, brown, and black in color; clay; montmorillonite; these are said to be ideal under irrigation for cotton. Cotton also is planted on "cinnamonic" soils, which are described as "dominantly reddish-yellow brown in color, montmorillonite attapulgite, loam and clay loam, highly calcareous"; and along the Euphrates on alluvial gray, sandy loam to clay soils.⁷

Climate and Weather

Syria has a Mediterranean climate with a rainy season extending from October to May. Winter temperatures fall to freezing or slightly below. From May until October Syria is practically rainless. Most Syrian crops, notably wheat and barley, grow mainly during the winter because of the rainfall situation. Cotton, on the other hand, is a summer crop that does, however, derive marginal benefit from moisture left in the ground by spring rains. Nevertheless, rainfall in typical cotton-growing areas, even in the winter rainy season, is usually sparse. In Aleppo, for instance, rainfall varied from 182 mm to 408 mm annually from 1968 to 1974, with an average of 333 mm. This compares with an average of 179 mm (7.05 inches) in Phoenix, Arizona, and 468 mm (18.41 inches) in Lubbock, Texas. In both of these U.S. locations; however, much of the limited rainfall occurs in the summer in the middle of the cotton-growing season.

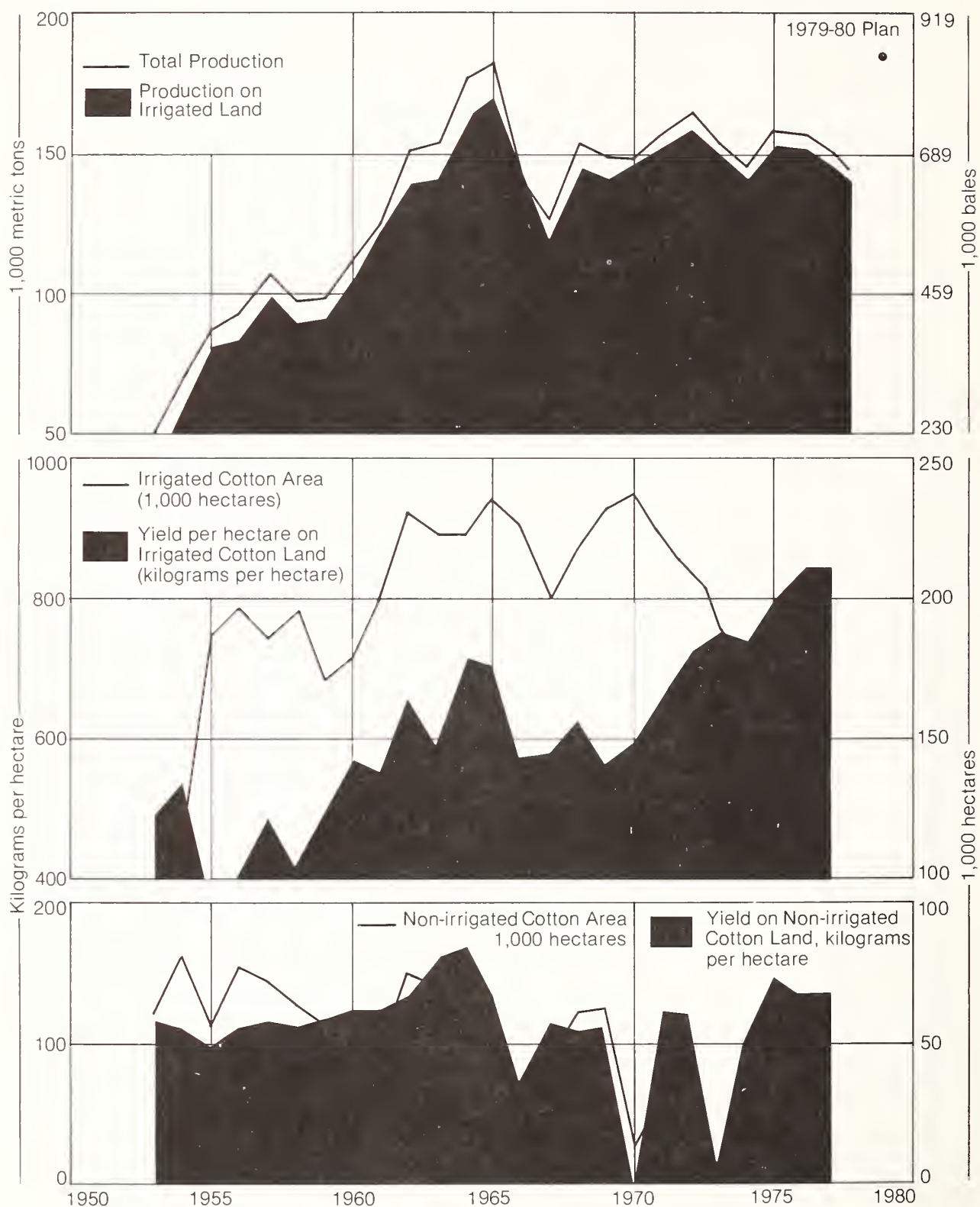
Syrian cotton thus depends heavily on irrigation water supplied from reservoirs, streams, and the ground water supply, all of which depend on the heavy winter rains and the snowfall received in the mountains.

The usual cotton planting time in Syria is between April 1 and May 25, and the usual picking time from September 1 to November 1. Temperatures at planting time are about the same as at Lubbock, Texas, or Phoenix, Arizona. During the peak of the growing season, in July and August, temperatures average higher than those in Lubbock but lower than in Phoenix. At picking time, they are higher than those in Lubbock and about the same as in Phoenix (Table 4).

Syrian cotton farmers sometimes are hard pressed to plant, grow, and harvest cotton between the cool wet spring and the fall rains. In 1974, heavy rains in late March delayed planting by 2 weeks, and in 1976 late rains and wet field conditions held up planting by 2 weeks to a month. Later it was reported that heavy

⁷Syrian Arab Republic Statistical Abstract, 1976, p. 50.

Area, yield and production of cotton in Syria, by crop years beginning August 1, 1950-1977.



rains beginning October 16 damaged opened and unpicked cotton bolls and delayed the opening of late cotton.

Generally speaking, however, Syria's cotton crop

does not appear to fluctuate much from year to year because of weather-induced gains or losses. An exception to this generalization is Syria's small rain-grown cotton crop.

TABLE 4.—NORMAL TEMPERATURES DURING COTTON GROWING SEASON
AT SELECTED POINTS IN SYRIA AND THE UNITED STATES

(In °Fahrenheit)

Period	Syria Aleppo	Syria Deir-ez-Zor	USA Lubbock, Texas	USA Phoenix, Arizona
Planting time, April	60	65	59	63
Peak of growing season, July-August	83	88	76	93
Picking time, October	76	70	62	73

Compiled from reports of U.S. National Oceanic and Atmospheric Administration.

TRENDS IN AREA, YIELDS, PRODUCTION, AND QUALITY

After reaching an alltime peak of 180,000 metric tons, production declined abruptly in 1966 and 1967 to 126,000 metric tons. Since then production has hovered around 150,000 tons, going as high as 163,000 tons in 1972 and falling to under 145,000 tons in 1974. The crop totaled 159,000 tons in 1975 and 155,200 in 1976 (fig. 1; table 5).

While Syria long had grown some cotton without irrigation, the irrigated area had exceeded the rain-grown area by 1953. The irrigated cotton area rose rapidly thereafter during the late 1950's and early 1960's to a peak of 223,000 hectares in 1965. By 1969, it totaled 237,000 hectares. Since then there has been a downward trend. The 175,000 hectares grown in 1977 was the smallest amount grown since 1960, off 41 percent from the 1969 peak.

Irrigated yields jumped rapidly from an average of 477 kilos per hectare in 1955-59 to a peak of 745 in 1964, then declined rapidly to 601 in 1969. Since then, they have again been rising rapidly, setting a new record of 896 kilos per hectare in 1976.

The area in nonirrigated cotton has continued to decline, and nonirrigated production for many years has been minimal, ranging from under 1,000 tons (1970-73) to over 10,000 (1963-64). Less than 2 percent of Syria's cotton is now grown without irrigation. Rain-grown yields fluctuate violently from year to year and are far below irrigated yields. They average around 110 to 130 kilograms per hectare, which compares, at the bottom of the world cotton yield scale, only with certain areas in India and Africa.

FACTORS AFFECTING PRODUCTION

Government Organization

The cotton industry in Syria is quite completely a Government operation except that the actual growing of cotton is largely in private hands, as is transportation of cotton to the gin. Purchasing, research, ginning, classing, marketing, exporting, and domestic processing all are done by Government organizations. Many of the ancillary functions, including the supply of seed, fertilizer, and credit, also are performed by Government agencies. Consequently, Government policies, decisions, and operations are crucial in determining the present and future of Syria's cotton industry.

Licenses farmers must have to grow cotton are issued by the Ministry of Agriculture and Agrarian Reform, which also is in charge of extension and pest control. The Government, which has a national plan, decides how much land can be planted in cotton and under what conditions. The price is set by a ministerial committee.

The Cotton Bureau, a specialized agency of the Ministry of Agriculture and Agrarian Reform, has had much to do with the development of cotton in Syria in the last quarter of a century. The Bureau conducts agricultural and technical research and is responsible for the development of new varieties. About 250,000 Syrian pounds (\$63,000) are spent annually on research, which appears to be a very minimal amount.

TABLE 5.—AREA, YIELD AND PRODUCTION OF COTTON IN SYRIA ON IRRIGATED AND NONIRRIGATED LAND, 1949-1977

Season beginning September 1	Area (In 1,000 hectares)		Yield (In kilograms per hectare)		Production (In 1,000 metric tons)	
	Irrigated	Nonirrigated	Total	Irrigated	Nonirrigated	Total
1949	—	—	25.3	—	—	13.2
1950	—	—	78.0	—	—	35.5
1951	—	—	217.0	—	—	48.0
1952	—	—	185.0	—	—	45.0
1953	76.3	58.8	135.3	526	40.3	47.2
1954	106.0	81.3	187.3	573	60.7	69.8
1955	187.0	56.0	243.0	435	81.4	87.0
1956	195.9	76.3	272.2	432	84.7	92.8
1957	186.7	71.6	258.3	532	99.4	107.2
1958	196.7	64.1	260.8	456	89.7	96.5
1959	170.0	57.2	227.2	532	90.4	97.1
1960	175.7	36.6	212.3	608	106.8	111.3
1961	202.8	46.3	249.1	586	118.8	124.5
1962	229.2	73.2	302.4	692	140.4	150.1
1963	222.2	69.5	291.7	637	141.5	152.9
1964	220.6	65.9	286.5	745	164.3	175.6
1965	233.3	62.1	295.4	736	171.6	180.2
1966	226.1	29.0	255.1	616	139.3	141.5
1967	197.3	42.1	239.4	616	121.5	126.5
1968	219.9	59.5	279.4	668	146.9	153.6
1969	236.6	62.5	299.1	601	142.2	149.4
1970	236.1	13.3	249.4	630	148.7	148.8
1971	220.2	30.3	250.5	698	153.6	157.4
1972	210.5	27.7	238.2	759	159.7	163.1
1973	195.4	5.0	200.4	793	155.0	155.5
1974	180.6	25.2	205.9	787	142.2	144.8
1975	185.1	23.0	208.1	848	155.0	158.3
1976	172.7	9.1	181.8	896	154.6	156.3
1977 ¹	176.8	10.2	187.0	851	150.5	152.0

¹ Preliminary.

Compiled from reports of Syria to the annual meetings of the International Cotton Advisory Committee.

fertile areas, where sugar beets will replace cotton and other summer crops, taking by 1980 an estimated 50,000 hectares of the 173,000 hectares now in irrigated cotton.

The Syrian Government is trying to diversify and increase food production, and to intensify use of irrigated land by double cropping. Since it is difficult to double crop with cotton, this policy is a deterrent to cotton plantings.

There is interest in planting soybeans after wheat is harvested in June. In 1976, 170 metric tons of soybean seed were to be imported, but thus far soybeans have been planted on only a limited scale. Present plans call for gradually decreasing the area in cotton through 1978/79, but for more than regaining the output lost through higher yields. The fourth plan calls for 200,000 hectares in cotton in 1979/80, a yield of 920 kilos per hectare, and production of 185,000 tons of cotton lint. These would represent gains of 8 percent, 9 percent, and 19 percent over 1976/77 figures (table 6).

Variety Development and Seed Distribution

Much of Syria's success in growing cotton is the result of providing high-quality planting seed that is well adapted to Syrian conditions. In 1955, Coker 100 Wilt was made the sole legal variety in all of Syria. In 1963, Coker Carolina Queen was introduced and was the sole variety from 1965 until 1970. Some 200 tons of seed were imported annually from the United States. The seeds were then multiplied through two stages to produce certified seed for growers.

Verticillium wilt became a major problem in Syria, however, so a search was made for varieties from all over the world that might have greater resistance to this disease under Syrian conditions. This led to the selection in 1961 of what is thought to have been a natural cross between the Russian 108F variety and the Chinese Pengtze variety, which perhaps was derived from U.S. Acala. The new variety, Aleppo 1, was made the sole variety in 1974 and continued to be through 1976. According to Dr. Abdul Rahim Shami, director of the Cotton Bureau, who received a medal and prize from the Government of Syria for developing it, "the new variety has been a miracle to Syria. Seven years of experimentation have proved that it gave a 16-percent higher yield in a noninfected area and a 45-percent higher yield in infected area."⁹

Under Aleppo 1, the irrigated yield in Syria has attained a record level. The new variety is reported to

have a slightly shorter staple length and a slightly lower Pressley strength index, but a slightly higher uniformity and about the same micronaire as its predecessor.¹⁰

The Cotton Bureau has been conducting a hybridization program on Aleppo 1 since 1970 to increase further its resistance to verticillium wilt, lengthen its fiber by 1/32 of an inch, and to raise its fiber strength from 80,000 to 90,000 pounds. Aleppo 1 has been crossed with Acala SJ 1, creating a new variety, Aleppo 40, which was scheduled to begin replacing Aleppo 1 in 1977. About 100 tons of lint of another new variety, Aleppo 33, were produced in 1976/77 and production was expected to rise to 1,000 tons in 1977/78. This variety, selected from a single Acala SJI plant, is grown in highly wilt-infected areas. Another variety, Aleppo 45, an artificial hybrid of Aleppo 1 and a Ugandan variety to obtain resistance to wilt and black arm disease, was being considered for use in sprinkler irrigated areas. In another direction, glandless strains of Acala 4-42 have been tried successfully in Syria and efforts are being made to transmit the glandless characteristic to Aleppo 1.^{11, 12}

In order to maintain the high potential of the established variety, 1,000 to 3,000 plants are selected each year, are then multiplied, selected again the second year, and multiplied the third year using cross-pollination techniques. The seed is ginned separately under strict supervision to prevent mixing, is treated with fungicides, and packed in 50-kilo bags labelled "certified seed." Such seed is sold only by the Agricultural Cooperative Bank; it is illegal to purchase cottonseed for planting except from the Bank.

Success in developing a variety that is tolerant to verticillium wilt was largely responsible for the rapid rise in yields in Syria in the last few years. Future gains in yields from improvements in varieties, considering the nature and problems of botanical research, would appear likely to come more slowly.

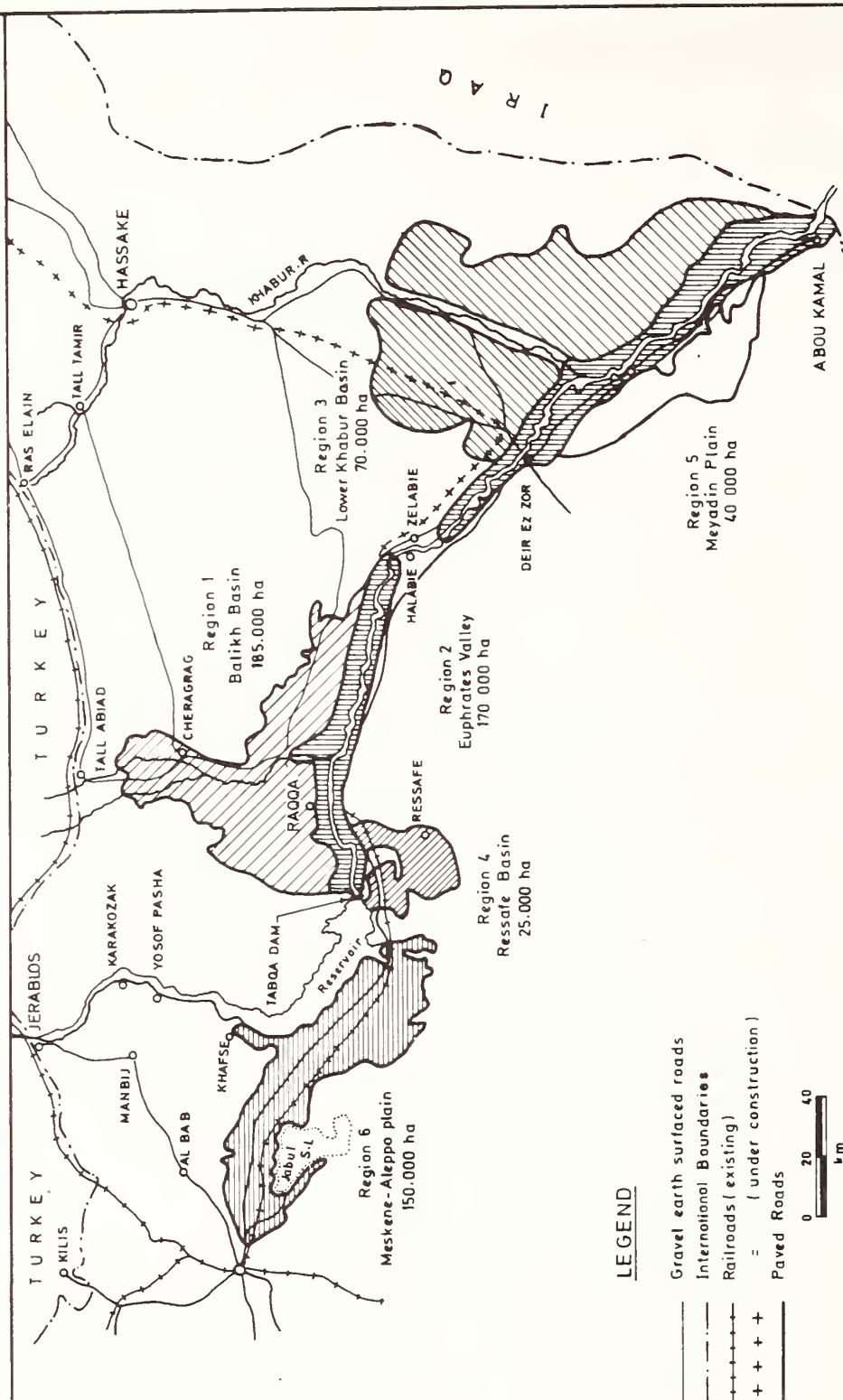
Nevertheless, there is obviously still room for further gains by applying the sum of cotton technology available in the world to the situation in Syria. Syria's yield of 896 kilos per hectare in 1976/77 is about equal to the yield under irrigation in the USSR, 897 kilos, but was below Israel's 1,326, Arizona's 1,320, and California's 1,193, although Syria is already far ahead of most other countries in this regard.

¹⁰Statement of Syrian delegation to the 35th Plenary Meeting of the International Cotton Advisory Committee, San Francisco, October 1976.

¹¹See footnote 10.

¹²Al-Ba'th newspaper, Damascus, July 10, 1976; Syrian Cotton Bureau report for second half of June 1977.

⁹"Cotton Breeding in Syria," Dr. Abdul Rahim Shami, Director, Cotton Bureau, Indian Journal of Genetics.



Raqqah 1970

IRRIGATION REGIONS (NEDEKO - GADEB)

Prepared by GADEB

TABLE 6. —SYRIA'S FOURTH FIVE-YEAR PLAN ON COTTON

Year	Area (In hectares)		Yield (In kilos/ha)		Production (In metric tons)	
	Plan	Actual	Plan	Actual	Plan	Actual
1975/76	—	208,126	—	761	—	158,337
1976/77	199,613	185,000	817	860	163,000	156,300
1977/78	196,260	—	846	—	166,000	—
1978/79	180,055	—	872	—	157,000	—
1979/80	201,134	—	920	—	185,000	—

Compiled from a Syrian Government report to the International Cotton Advisory Committee.

Pests and Diseases

Principal diseases damaging cotton in Syria are damping-off (*Rhizoctonia solani*), wilt (*Verticillium albo-atrum*), and black arm (*Xanthomonas malvacearum*)¹³. Verticillium wilt is the leading problem and, although considerable success has been accomplished in breeding varieties to withstand it, there are wilt symptoms everywhere. The cotton crop suffers particularly from this disease in Hama and Hama provinces. There are, however, no problems from Fusarium wilt and nematodes, nor is rust a disease of importance.

Principal insects affecting cotton in Syria, in order of their appearance through the life cycle of the cotton plant are: Cut-worms (*Agrotis ypsilon*), thrips (*Thrips tabaci*), aphids (*Aphis gossypii*), green worms (*Laphygma exygua*), jassids (*Empoasca lybica*), red spiders (*Tetranychus telarius*), spiny bollworms (*Earias insulana*), American bollworm (*Heliothis armigera*), pink bollworm (*Pectinophora gossypiella*), white fly (*Bemisia tabaci*), and lygus bugs (*Psallus syriatus*).

Insects generally are not too much of a problem for the cotton crop and insecticides are applied to only about 30 percent of the cotton area. However, there have been heavy attacks by the spiny bollworm and American bollworm in the eastern part of Syria and pink bollworms are of concern. Boll weevils are absent.

Fertilizer

Cotton farmers receive a large share of all the chemical fertilizers used in Syria. Fertilizer is one of the items financed by the Agricultural Cooperative Bank, which makes it available at reduced prices. In the past, it has been recommended that farmers use an average of 32 kilograms of nitrogen and 32 kilograms of phosphate per hectare. For 1975, the average recommendation was 80-100 kilograms of N

and 60 kilograms of P₂O₅. Farmers are required to purchase fertilizer from the Agricultural Bank in order to obtain planting seed. No data are available on actual use, but 90 to 100 percent of farmers are said to use fertilizer and consumption is said to be rising.

The above quantities contrast with an average use in Arizona in 1976 of 138 kilograms of N, 55 of P₂O₅, and 140 of potash per hectare; and in Texas of 47 kilograms of N, 47 of P₂O₅ and 14 of potash.

At present, Syria has only one nitrogenous fertilizer plant with annual capacity of 150,000 tons of 26-percent nitrogen fertilizer. Production has been rising and was up to 85,883 tons in 1975. Syria has large phosphate rock deposits, and 308,000 tons of phosphate rock were exported in 1975. However, there is no local plant to convert the rock into phosphate fertilizers. In 1975, Syria imported 112,700 tons of nitrogen fertilizer, 51,000 tons of phosphate, and 0.5 tons of potash (product milled basis). Additional fertilizer plants are being built. A new plant, to be completed in 1978, will produce 1,050 tons of nitrogenous fertilizer and 1,000 tons of urea daily. Two new triple super phosphate plants, also under way, will have an annual capacity of 700,000 tons.

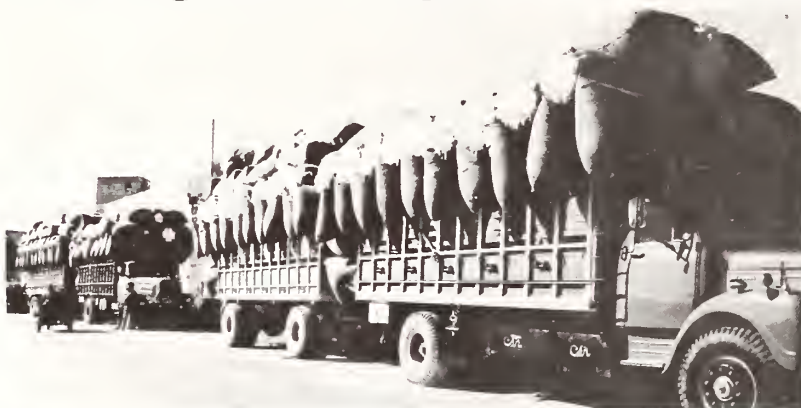
Since domestic production of fertilizer is expanding, and it is Government policy to operate Syria's agriculture on an intensive basis, it would appear that fertilizer use on cotton land will expand in the years ahead.

Cultural Practices

About 95 percent of the cotton land is prepared for planting by tractor. The standard is 65-centimeter rows (26 inches compared to 40 inches in the United States). Practically all irrigated land is then formed into small basins with numerous levees, which render practically impossible the use of power equipment for cultivation and harvesting. Further mechanization would require, however, a major reorganization of ownership and cultural practices, including leveling of land in most areas.

¹³See footnote 10.

Syrian Cotton-- the ginning process



1



2

1. Seed cotton arriving at one of the gins of the Cotton Marketing Organization in Aleppo. The Organization is responsible for purchasing cotton from the farmer at the gin, ginning, classing, warehousing, marketing for export and for domestic mills, market development, and market research.



3

2 and 3. Checking the moisture, content, and grade of seed cotton at the gin. Syrian cotton is mostly Middling 1-3/32" in grade and staple length.



4

4. Seed cotton in storage in gin yard prior to ginning.





5



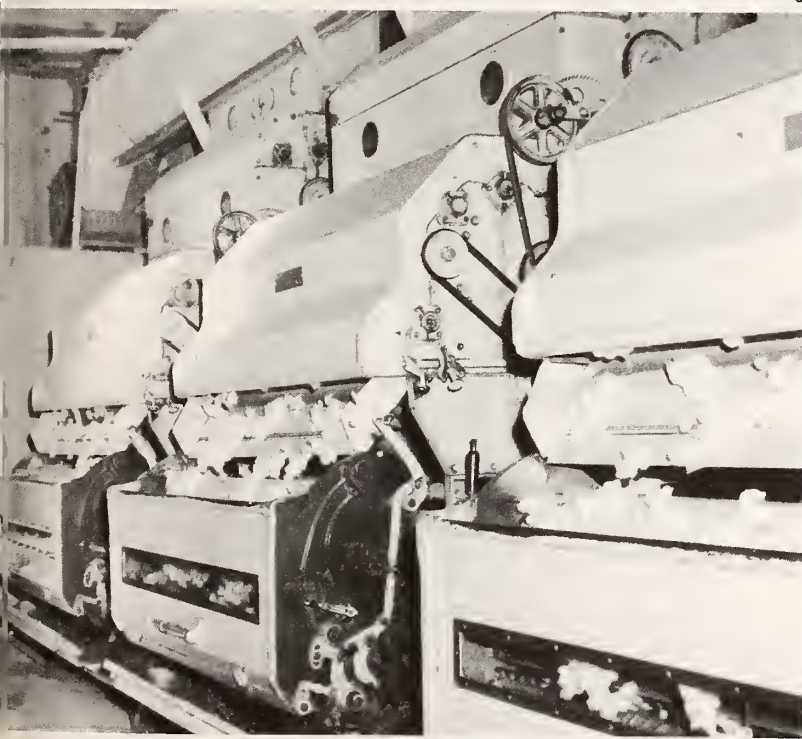
7



8

5. An old roller gin installation. Formerly most of Syria's cotton was roller-ginned, but now only 16 percent is.

6. A modern saw-gin installation. The Cotton Marketing Organization hopes eventually to have 90 percent of its ginning operations in saw gins.



6

7. Ginned cotton being compressed into bales. Presses installed recently turn out 230-kilogram and 285-kilogram bales with density of 33-35 pounds per cubic foot, which would be comparable to that of U.S. high-density bales.

8. Syrian lint cotton ready for export or consumption in domestic mills. Some cotton is now being shipped in containers. Syria is the 10th largest cotton producer in the world and 4th largest exporter. The Soviet Union, the People's Republic of China, and Western Europe are major buyers.

Some projects have had to be discontinued for lack of funds. The Bureau's former function of seed propagation and distribution has now been transferred to a general agency handling seed for all crops. The Bureau controls cotton quality for exports and thus is involved with cotton ginning and grading at the Cotton Marketing Organization. It also is involved with the annual Syrian cotton festival, and regularly publishes a semimonthly report on the cotton situation in Syria. Dr. Abdul Rahim Shami is the director. Its headquarters are at Aleppo.

The Agricultural Cooperative Bank sells planting seed, fertilizer, pesticides, and sacks to farmers and also provides them with production loans. It pays them for their cotton on behalf of the Cotton Marketing Organization.

Syria formerly had an Extension man for every 2,000 hectares. He was required to live in a tent in the actual cotton fields in the summer and inspect all cotton fields once a week. There are still as many Extension units, but they are now located in the villages; the workers are now more generalized, covering all crops.

The Cotton Marketing Organization, which began operations in 1965, is part of the Syrian Ministry of Economy and Foreign Trade. It is a monopoly that performs the functions of purchasing cotton from the farmer at the gin, ginning, classing, warehousing, marketing for export and for domestic mills, market development, and market research. Rateb Jaber is the director general and chairman. The organization's headquarters are at Bab El Faraj Square, P.O. Box 729, Aleppo.

All spinning mills and nearly all weaving mills in Syria are now owned by the Government and operate under the Government's General Organization for Textile Industries.

Decline in Nonirrigated Farming

Dry farming of cotton in Syria is at best a hazardous enterprise and is now of little importance. Farmers must judge at planting time in April if the winter rains, which vary considerably from year to year, have left enough moisture in the soil to carry the crop all the way through to harvesting the next fall, following a rainless 6, or so, months. Soils, however, have sufficient water-carrying capacity to provide some cotton-growing potential. Of course, there is competition from other crops.

Irrigated Cotton and the Euphrates Basin Project

Of Syria's 3.7 million hectares in crops, only 516,000 were under irrigation in 1975. Cotton, however, is Syria's leading irrigated crop, accounting for nearly half of Syria's irrigated acreage in 1969 and

1970 and nearly one-third during the period 1973-75. Conversely, all but less than 2 percent of Syria's cotton is grown under irrigation. Syria's success in becoming a major cotton-growing country is linked in large measure with its success in developing irrigation. On the other hand, the bulk of Syria's food crops is rain-grown and subject to considerable variation from year to year.

Syria had an average of 510,000 hectares under irrigation during 1964-66 and an average of 607,000 during 1972-74. Of the 516,100 hectares under irrigation in 1975, 412,400 were supplied by pumps, including 208,600 from rivers and 203,800 from wells. The other 103,700 were supplied by diverting flow from rivers.⁸ Syrian cotton typically is given 7 to 12 irrigations per year.

The Syrian Government has undertaken or planned a number of irrigation and land development projects along the Euphrates River, in the Orontes River Valley or Ghab region, the Mediterranean coast, and the Damascus area. By far the most ambitious is in the Euphrates River Basin, where plans are to irrigate 640,000 hectares, thus more than doubling Syria's irrigated area. The key to this project is the 3-mile-long, earth-filled Tabqa Dam, now called Al Thawra or "Revolution" Dam across the Euphrates, located about 150 kilometers east of Aleppo. Virtually completed in 1976, the dam is one of the world's largest.

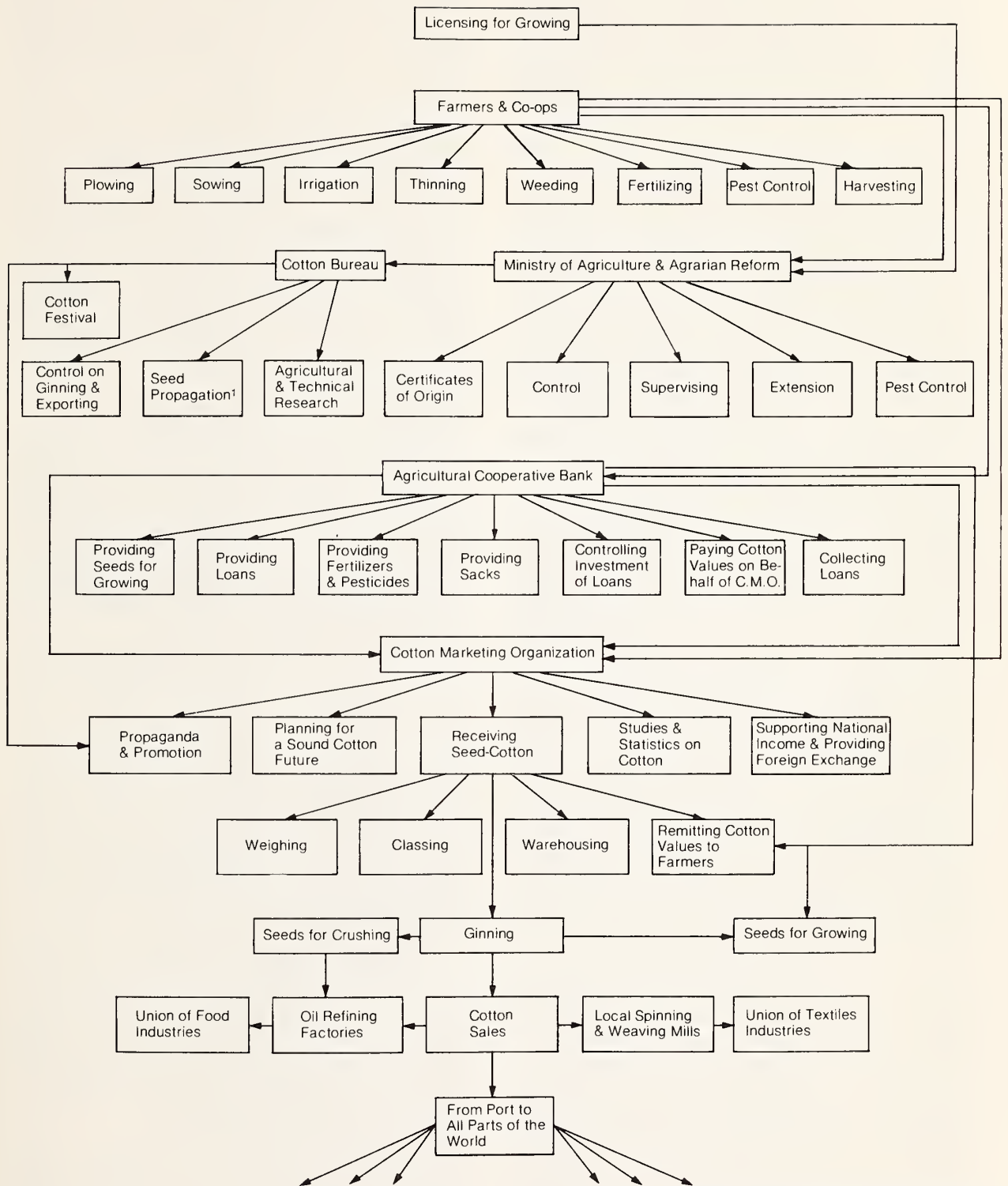
The dam was built with the financial and technical assistance of the Soviet Union. It impounds Lake Assad, a reservoir named after Syria's President, with a capacity of about 11.9 million cubic meters of water. The dam will have eight giant turbines with an eventual electric generating capacity of 1,100,000 kilowatts. Four were already on stream at the end of 1976, providing 80 percent of Syria's power.

The first irrigation area to be developed from the Al Thawra Dam is in the Balikh Basin, immediately below the dam on the north side of the Euphrates (fig. 3). Eventually it is planned to irrigate 185,000 hectares in this project. At present there is a pilot subproject of 24,000 hectares served temporarily by water pumped from the river below the dam via a main canal. The World Bank and International Development Association announced financing totaling \$73 million in March 1974 for development of the basin and for studies in the Lower Euphrates Valley. The present project includes a 184-kilometer main supply canal to deliver water from the Lake Assad Reservoir, an irrigation distribution system, the on-farm development of about 41,000 hectares, and surface drainage facilities, farm machinery, and community facilities.

This project is being operated under national ownership to study the many problems that might

⁸Statistical Abstract of Syria, 1976, p. 220.

Syrian Cotton from Farm to Port



¹Now the function of the Seed Multiplication Institute.

From **CMO 10 Years of Work**, published by the Cotton Marketing Organization, Aleppo, September 1975.

arise before the general provision of irrigation water to the entire project, and to provide resettlement opportunity for the population displaced by rising water in the reservoir. Studies thus far indicate that salinity is a limiting factor in much of the area and that adequate leaching and drainage facilities will be important. Summer crops during 1975 consisted of cotton, corn, alfalfa, rice, and soybeans. In addition, 200 hectares were planted to fruit and other trees.

Besides the pilot project, which already is being farmed, Bulgaria is assisting in the development of a 42,000-hectare project, partially financed by the International Bank of Reconstruction and Development in the Balikh Basin. In addition, Romania is financing studies on a gross area of 100,000 hectares.

A second area being developed is 150,000 hectares in the Meskene-Aleppo Plain, located between the dam and Aleppo on the west side of the new reservoir. Part of this development is being financed by a \$30 million loan from the Japanese Import-Export Bank for a 15,000-hectare land reclamation turnkey project and for studies covering 50,000 hectares, which were to be completed by October 1976. The Soviet Union is developing a 4,000-hectare State farm and designing irrigation work on an additional 17,000 hectares. Cotton is one of the crops being tried. These two projects are served by a pumping station that lifts water out of Lake Assad. The Soviet Union is also responsible for preliminary surveys on 125,000 hectares, with detailed designs to be submitted in three parts from May 1976 to August 1979.

A third area is the Rassafa Basin, located immediately south of the Al Thawra Dam, on which designs were to be ready by the end of 1976.

Other areas further down the river considered for development are the Euphrates Valley, 170,000 hectares; the Lower Khabur Basin, 70,000 hectares; and the Meyadin Plain, 40,000 hectares. The World Bank International Development Association (IDA) project is providing funds for consulting services for 200,000 hectares in these areas. There is also now a Romanian project for irrigation, drainage, land leveling, and roads in the Euphrates Valley.

For the time being, the effect of the Euphrates project has been to contribute to a decline in Syria's irrigated area in cotton because of the inundation of 37,000 acres of cotton land by the new reservoir.

It may take as long as 30 years to complete the entire project although some of the individual sections may be completed by 1980. How the water of the Euphrates is eventually to be shared with the other countries along its course is yet to be defined. Undoubtedly the river still has a huge, undeveloped potential for irrigation. In the meantime, major investments will be required over the next 5 years to construct projects already planned.

Syria has a number of other irrigation projects, but they are small compared with the huge Euphrates one, which has been given first priority in Syria's 5-year plans. Until now four-fifths of Syria's irrigation has been from pumps, including half from rivers and half from wells. In the last few years the amount of land thus supplied with water has been steadily rising.

Plans are to emphasize food crops in the Euphrates project in order to relieve Syria's dependence on foreign sources for food. In another 5 years the plan is to give some of the new land to cotton. Nevertheless, it should be remembered that until now cotton has occupied from 45 to 50 percent of the irrigated land in the Euphrates Valley; so it would be surprising if cotton were not eventually an important crop on the new lands. Of course, cost and competition with other crops will be important considerations.

Competition From Other Crops

Syria is a large importer of food. It imported 92,800 metric tons of wheat and 91,100 tons of flour in 1974; 217,100 tons and 82,500 tons, respectively, in 1975. In addition, Syria imports substantial tonages of sugar, dairy products, and fruit. Imports of agricultural products in all totaled \$342 million in 1974 and \$349 million in 1975. In 1974, agricultural imports exceeded agricultural exports by \$91 million; in 1975, by \$173 million.

Syria, like a number of other countries, must decide on the best course economically—to raise cotton for export in order to earn foreign exchange with which to import supplementary food, or to replace cotton with additional food production. Relative prices are, of course, highly important in this equation. The rapid rise in petroleum exports, which now earn \$650 million a year, and which have replaced cotton as the leading Syrian export, may have relieved some of the pressure to export cotton in order to earn foreign exchange. In any event, present Syrian policy is to increase food production and to limit the cotton area.

As noted earlier, most of Syria's grain production depends on the vicissitudes of winter rainfall. If rains are light, food import requirements are greater. Facilities for the storing and marketing of grain have improved in the last few years, but it still is doubtful if production of grain and protein meal can keep ahead of rising domestic requirements, considering the rate of growth of the population.

Competition for irrigated land is strong. Cotton has lost ground near urban areas to vegetables and in distant areas—where labor and capital are in short supply—to high-yielding wheat. Sugar beets and potatoes are also important competitors. Four sugar beet mills are under construction in some of Syria's most

Despite the small size of most irrigation basins, many cotton plants obviously suffer from uneven distribution of water. Almost no cotton land has been brought to the proper slope for efficient large-scale irrigation systems. Sprinkler irrigation was being used on 500 hectares in 1977.

If the soil is flat, the seed is broadcast by hand or placed continuously in slight furrows 25-35 centimeters (cm) apart. All cotton in Syria is thinned, usually after 1 month when the plants are 20 centimeters high. Picking begins at the end of August and continues until the end of November or shortly thereafter.

All cotton picking is by hand, usually twice and sometimes three times. With labor becoming more and more scarce, there is considerable interest in mechanical picking. Soviet pickers have been tried and trials were conducted in October 1976 with two different U.S. pickers and a U.S. stripper. In March 1977, the Syrian Government ordered all agricultural directorates to set aside 100 hectares of irrigated land for mechanical planting and picking trials. Undoubtedly mechanical picking will arrive in the years ahead, but until basin irrigation is eliminated, it is difficult to see how mechanical picking can make much headway. Installation of cleaning equipment in the gins will also be necessary.

After cotton is picked, sheep are brought in from the desert to forage the cotton area clean, reportedly assisting with insect problems at the same time. There is a statutory requirement that cotton cannot be planted on more than 50 percent of farmer's land, but overplanting does occur.

Land Reform

Cotton production in Syria developed as a large-scale enterprise, but in the late 1950's a change took place as the large farms began to be expropriated. Generally, the land was parceled to the families who had been tenants. About one-third of Syria's cultivated land was redistributed and this affected cotton production at the time. By 1970, however, land redistribution had been virtually completed and no longer acts as a constraint on cotton production.

Roughly half of Syria's cotton land is owned by farmers who work the land. Most farmers have no more than 5 to 15 hectares although some control 20 to 100 hectares and perhaps more if some of the land is under the names of other family members. The other half is largely farmed by share farmers whose share by law is 40 percent for their hand labor. Plowing and planting seed, water, and 60 percent of the fertilizer is at the expense of the owner. Usually 30 hectares is all that a share farmer can handle, but sometimes he hires workers to assist. If a cooperative is involved, the co-op plows the land.

In 1966, the Government required farmers who benefited from the Agrarian Reform Law to join cooperatives. By 1974, 23 percent of Syria's cotton production was by members of cooperatives. Some cotton is now produced at State farms owned by such authorities as General Administration for the Development of the Euphrates Basin (GADEB). In the Euphrates projects, experiments are in progress on State farms, co-ops, and private holdings.

Prices, Price Supports, and Farm Credit

The Government is the sole buyer of seed cotton from the farmer and the sole seller of lint cotton to domestic mills and for export. It announces the price that it will pay farmers for the coming crop around mid-March each year. The price is the same throughout Syria, but the Government also pays a transportation subsidy to equalize the cost of getting cotton to the gin from remote areas. Farmers receive payment about 15 days after delivery to the gin. The price is set by the Supreme Agricultural Council, a committee consisting of the Prime Minister and several other ministers after a study of the cost of production.

Differentials are paid on seed cotton for ginning outturn, moisture content, staple length and grade, all according to a sample taken when the seed cotton arrives at the gin. The differentials are set by the Cotton Marketing Organization according to work differences.

In 1970 and 1971 the official base price paid to cotton farmers was 80 piastres per kilo of seed cotton (20.9 U.S. cents), and since then has been advanced each year. The 1976 price of 145 piastres (36.7 U.S. cents) was, however, only 7 percent over the 1975 level, while the general rate of inflation in Syria was running nearly double this level. The price paid for the 1977 crop has been raised to 170 piasters (43.0 U.S. cents). Syrian cotton farmers thus have had to increase yields just to maintain the same profitability.

Syrian farmers received about the same price for their cotton as did their U.S. counterparts in 1970-72. However, they did not enjoy the upswing in world cotton prices that took place in 1973/74 and again in 1976/77 to the same extent as U.S. farmers (table 7.).

In early 1977, the Syrian price to farmers for cotton (1976 crop) was the equivalent of 96 U.S. cents per kilogram **on a lint basis** (43.5 cents per lb), compared to \$1.42 in the United States (64.4 cents per lb). For the 1977/78 crop, it was announced that Syrian farmers would be paid the equivalent of \$1.12 per kilogram (51.0 cents per lb). On the other hand, the Syrian Supreme Agricultural Council announced it would pay \$154-\$162 per metric tons for wheat in 1977 compared to \$66.37 for all wheat to U.S. farmers in February 1977. For soybeans, the Syrian

TABLE 7.—COMPARATIVE PRICE AND MARKETING MARGINS FOR SYRIAN AND U.S. COTTON, 1970-76

(In U.S. cents per kilogram)

Prices	Year beginning August 1						
	1970	1971	1972	1973	1974	1975	1976
Average prices in Northern Europe ¹							
U.S. SM 1-1/16"	70	83	96	173	125	157	182
Syria, SM 1-1/16"	69	86	95	191	128	144	188
Prices paid to farmers							
United States ²	50	62	60	98	94	113	143
Syria ³	54	54	56	62	83	96	96
Spread between farmer and North European prices							
U.S. cotton	20	21	36	85	31	44	39
Syrian cotton	15	32	29	129	45	48	92

¹Liverpool Outlook. Average of weekly quotations. ²Weighted by sales. Average for all qualities, but SLM 1-1/16" has been the average quality. It is believed such U.S. cotton would be considered in Europe to be approximately SM 1-1/16". ³Base price of seed cotton in Syria divided by ginning outturn. It is assumed that cost of ginning was approximately offset by value of cottonseed.

price was \$385, while the farmer's price in the United States was \$190. For sugar beets, the Syrian price was to be \$33 to \$37 per metric ton, compared with a U.S. average price in 1976 of \$21.83. It can be concluded that Syrian price policy currently discourages cotton production and encourages production of food crops.

After a farmer receives his acreage permit to grow cotton from the Cotton Bureau, he takes the permit to the Agricultural Cooperative Bank where he obtains seed, fertilizer, sacks, and insecticides in kind and cash to finance other production costs. For the 1976 crop he could obtain a loan of 750 Syrian pounds (\$190) per hectare, up from 550 (\$139) in 1975/76.

Since 1970, the Commercial Bank of Syria has charged 5.5 percent interest for loans for agricultural inputs to farmers and 4 percent to cooperatives. The Agricultural Cooperative Bank, with 51 branches throughout Syria, has an interest rate 0.75 percent below that of the Commercial Bank for individuals and 1.5 percent below for cooperatives.

Loans are usually expected to be paid off a few days after cotton is delivered at the gin. In a bad year, however, loans can be extended to at least the next season.

Costs of Producing Cotton

Data submitted by the Syrian Government to the International Cotton Advisory Committee indicate a net cost of producing lint cotton in 1976/77 of 90.6 cents per kilogram before allowance for the value of land. This was based on a yield of 950 kilos of lint per hectare while the national average was 860. On

the latter basis, the cost would be around \$1 per kilogram, which compares with a national average of \$1.03 cents per kilogram for the United States and around 74 cents for western United States (California, Arizona, and New Mexico).

Preharvest direct costs run about the same as in the irrigated U.S. west with higher costs for labor in Syria and much lower costs for plant protection and defoliant chemicals. Picking by hand apparently costs more in Syria than machine picking in the United States. Ginning is listed as considerably more costly in the United States and the offset from sale of cottonseed is much lower. The Syrian cost schedule gives no allowance for management and general farm overhead.

Syrian farmers purchase cottonseed for planting from the Agricultural Cooperative Bank for 31 piastres (8.4 U.S. cents) per kilogram, the same price as for seed for all other crops. In the United States, planting seed from a seed producer is around 64 cents kilogram. Diesel oil was priced at 12 Syrian piastres per liter (12.2 U.S. cents per gallon) before November 15, 1975, and 15 piastres (15.3 U.S. cents per gallon) thereafter which would be far below the U.S. price. Gasoline, at 37.5 piastres per liter in 1973, was raised to 52.5 piastres (38.4 to 53.7 U.S. cents per gallon) in November 1975. In May 1977, it was 82.5 piastres (79.1 U.S. cents).

Picking costs in Syria almost doubled in the 3 years from 1972 to 1975. They averaged about 8 piastres per kilogram of seed cotton for many years, but rose to around 10 in 1974. Pickers in 1975 were getting 10 to 15 piastres (2.5 U.S. to 3.8 U.S. cents) per kilo of seed cotton for the first picking and sometimes double, or more, for the second and

TABLE 8.—COMPARATIVE COST OF PRODUCING COTTON IN SYRIA¹
AND THE UNITED STATES, 1975/76-1976/77

Item	Syria		Western United States ²	
	1975/76	1976/77	1975/76	1976/77
Yield used ³	----- Kilograms per hectare -----			
For seed cotton	2,500	2,500	3,667	3,711
For cotton lint	950	950	1,139	1,197
On farm direct costs pre-harvesting	----- U.S. dollars per hectare -----			
Labor	169.86	176.92	80.41	75.81
Power and equipment	187.67	193.59	116.61	151.40
Seed	16.44	15.38	18.88	15.36
Fertilizer	102.19	95.64	131.23	64.17
Plant protection chemicals	8.22	38.46	136.99	127.01
Defoliants	—	—	30.77	—
Irrigation	41.10	115.38	⁴ 19.62	⁴ 37.08
Custom or contract work	—	—	34.04	53.76
Other	49.32	47.45	—	—
Subtotal	547.80	682.81	568.75	524.59
Harvesting				
Labor	82.19	128.21	26.79	25.28
Power and equipment	—	—	81.05	105.24
Custom or contract work	—	—	60.00	49.64
Other	5.48	10.26	—	—
Subtotal	87.67	138.47	167.84	180.16
Interest on operating capital	27.40	50.00	23.45	16.53
Off-farm direct costs				
Transportation to gin	34.25	32.05	25.11	26.39
Ginning (including bagging and ties)	68.50	76.92	165.73	176.63
Subtotal	102.75	108.97	190.84	203.02
Total direct costs	792.62	980.25	950.88	924.30
Overhead costs				
Management	—	—	90.51	125.30
General farm overhead	—	—	52.71	56.34
Subtotal	—	—	143.22	181.64
(Land cost (typical rental value)) ⁵	(184.93)	(198.72)	(153.20)	(172.97)
Total cost for seed cotton	792.62	980.25	1,094.10	1,105.94
Less value of cottonseed	127.40	119.23	209.64	220.36
Net cost for cotton lint	655.22	861.02	884.46	885.58
Net cost of lint per kilogram, not including land value ³ . . .	----- U.S. cents per kilogram -----			
	70.00	90.63	77.65	73.98
Including land value ³	96.84	111.55	89.51	88.43

¹International Cotton Advisory Committee, Survey of Cost of Production of Raw Cotton, Document 10, 35th Plenary Meeting, 1976, and 36th Meeting, 1977. ²Arizona, California, and New Mexico. ³See text. ⁴Other irrigation costs including labor, power, and equipment are included in these categories. ⁵Not included in total except as indicated.

subsequent pickings. There was a further sharp rise in 1976, caused by a shortage of labor and a general uptrend in prices.

The significance of cost data given here is open to some question. Inputs such as oil, fertilizer, and seed are supplied to farmers at subsidized prices in Syria. Food prices are generally lower in Syria than in the United States, benefiting from Government subsidies that totaled \$156 million in 1975. Bread, for instance, sold then for 35 to 55 piastres (9 to 14 U.S. cents) per kilo.

Transportation to the gin cost the farmer from 20 to 65 Syrian pounds (\$5.40-\$17.00) per metric ton. The Cotton Marketing Organization, however, defrayed as much as 25 Syrian pounds (\$6.75) of the total from distant places.

Also significant is the fact that farmers pay no taxes directly on land or cotton. The Cotton Marketing Organization, however, pays the Syrian Government an export tax of 12.5 percent of the value of the cotton and another 9 percent as an equivalent to the land tax. On cotton consumed domestically, only a 9 percent tax is paid on the value of the cotton by the mill consuming it. Oil mills comparably pay 9 percent on the value of the cottonseed they crush.

Ginning and Marketing

Syria has 20 operating gins: 12 in Aleppo, 1 in Idleb City, 4 in Hama Mohafazat, 1 in Homs City, 1 in Deir-ez-Zor City, and 1 in Damascus. All but the last, a textile mill, are administered by the Cotton Marketing Organization (CMO). Prior to 1965 there were 57 gins, but these were merged into larger units after nationalization. A comparison of the location of cotton production with the location of the cotton gins indicates that cotton in northeast Syria and the lower Fuphrates generally has to travel farthest to the gin.

In earlier years most of Syria's cotton was roller ginned, but the Cotton Marketing Organization is installing new saw-ginning equipment. In the early 1950's only 23 percent was saw-ginned. By 1975/76 the proportion had grown to 84 percent and the CMO hopes to attain 90 percent.

Seed cotton is stuffed by farmers into standard bags weighing 130-160 kilograms when full, including 2 percent tare. The bags are loaded onto large heavy-duty trucks for their trip to the gin, accompanied by papers stating to whom the cotton belongs, the season, district, number of the agricultural license, number of bags, and whether it is "agricultural cotton"—to be handled separately so the seed can be segregated for planting—or "industrial cotton." The papers also give the variety, the total weight on the truck (perhaps 27 tons), the name of the driver, and instructions to pay the driver. If the

farmer belongs to a co-op, the co-op may be involved in getting the truckload together.

Each truckload of seed cotton coming into Aleppo stops on the outskirts of town at a distribution center which designates the gin to which the truck should proceed. At the gins during the busy season one can see a line, perhaps a quarter of a mile long, of trucks all piled high with bags of seed cotton waiting their turn to be unloaded.

As cotton is received at the gin, each bag is weighed and the seed cotton in it is classed immediately for grade and staple. Farmers can appeal the class to a cotton committee, but appeals are rare. Also, a sample check is made to determine moisture content and a sample is taken from each truckload to get a laboratory determination of ginning outturn. Both seed cotton and lint cotton have the same grade designations.

By the middle of October perhaps one-fourth of the cotton crop will have been picked, but only small quantities delivered to the gin. Deliveries peak in late October and early November and are completed by mid-January. Actual ginning goes on from mid-October until about the end of April at a rate of 5,000 to 7,000 metric tons of seed cotton weekly. The 1976/77 crop was 40 percent ginned by December 31 and 70 percent ginned by the end of February. The 1975/76 crop was 35 percent ginned by the end of December, 69 percent by February 29, and completely ginned by May 15. This is a somewhat slower tempo than in the United States, where the crop is around 40 percent ginned by November 1, over 90 percent by December 31, and nearly completely ginned by February 1. It may, however, represent a more efficient utilization of gin equipment and manpower than would a faster schedule.

Syria's ginning ratio is quite high. The percentage of lint derived from seed cotton was 38.23 percent in 1976/77 and varied from 37.46 percent to 39.07 percent during the decade of 1967-76.

After ginning, the lint cotton is classed at the gin for grade and staple length against grades and types specified by the Cotton Marketing Organization. Samples are drawn from 5 percent of the bales. Original classing is later rechecked when the cotton is in the warehouse.

A cotton classing board in the Cotton Marketing Organization headquarters prepares the official standards and types. The type samples are sent to CMO agents abroad, where they become the basis for actual buying and selling of Syrian cotton. Cotton is usually sold in 50-bale lots of a given type. The CMO has a policy of sending its classers to Europe for training with cotton arbitration boards.

New official standards for saw-ginned cotton, the first since 1963, were prepared in 1974. Syria is still using the 1963 standards for roller-ginned cotton.

TABLE 9.—STAPLE LENGTH AND GRADE OF COTTON GROWN IN SYRIA, 1959, 1964, 1964, 1970-76

Year beginning September 1	Staple Lengths (32nds of an inch)										Total
	30 and under	31	32	33	34	35	36	Over 36	Below grade & waste		
Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Metric tons
1959	1.8	1.8	4.0	17.9	54.4	13.8	5.7	0.4	2.0	100.0	97,096
1964	(1)	(1)	.9	4.4	23.5	43.2	25.3	1.8	.9	100.0	175,642
1970	0	0	(1)	.7	21.3	64.1	13.6	0	.3	100.0	148,768
1971	0	0	1.0	1.5	21.9	63.6	11.5	0	.5	100.0	157,432
1972	0	0	.6	1.4	21.1	63.1	13.5	0	.3	100.0	163,063
1973	0	0	.1	.2	15.5	65.2	18.7	0	.3	100.0	155,574
1974	0	0	(1)	1.5	23.9	64.2	10.1	0	.3	100.0	144,816
1975	0	0	0	.5	18.8	73.6	6.9	0	.2	100.0	158,337
1976	0	0	(1)	.7	33.1	65.5	.5	0	.2	100.0	156,300

Grade ²										
X/O & higher (Mid-leaf SM color)	0 (Mid-wh. shy)	1/0	1 (SLM white lt. spot)	1/2	2	3/2	3	Below grade & waste	Total	
Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Metric tons
1959	36.7	25.5	25.0	2.8	2.9	2.6	1.3	1.2	100.0	97,096
1964	1.4	22.6	67.4	1.2	3.0	1.3	.6	1.0	100.0	175,642
1970	75.3	21.7	2.3	.3	.1	0	0	(1)	100.0	148,768
1971	68.3	23.4	4.0	1.7	.7	.7	.2	.5	100.0	157,432
1972	53.8	24.5	9.1	9.6	1.9	.7	(1)	.3	100.0	163,063
1973	73.2	17.3	3.3	3.1	1.0	1.1	.1	.7	100.0	155,574
1974	68.1	18.9	5.0	4.8	2.2	.4	(1)	.3	100.0	144,816
1975	51.0	26.4	18.5	2.2	1.5	—	—	.2	100.0	158,337
1976	30.2,	17.8	43.3	5.7	2.5	.2	.1	.2	100.0	156,300

¹ Less than 0.5 percent. ² By Syrian grades. Approximate U.S. equivalents according to Syrian sources are indicated in parentheses. Three samples of Grade 0 Syrian cotton were classed by U.S. official classifiers as 33 percent SM white and 67 percent M white. ³ Includes 0.6 percent "Extra" grade.

Compiled from *Cotton in Syria*, 1966, and later reports of Cotton Bureau, Aleppo.

Type X is equal to Grade O in the Syrian Cotton Standards, said in Syria to be equivalent to U.S. Middling White Shy. This type is believed to be about equal to what would be considered Strict Middling grade in Europe or Middling or Strict Low Middling White by official classers in the United States. Samples of Grade O cotton were considered by U.S. official classers to be mostly Middling with some Strict Middling. Types in Syria are prepared by quarter gradations, X, X-¼, X-½, and so forth, apparently following the Egyptian system.

Most Syrian cotton has been classed in recent years as Grade O/X, which is the highest grade for which statistics are given, but the percentage in this grade has varied from as high as 75 percent in 1970 to as low as 51 percent in 1975. The remainder is largely Grade O, but occasionally, as in 1972 and 1975, some of the crop falls in a lower grade.

Syrian cotton in 1976/77, according to Syrian cotton classification, was largely 1-3/32" in staple length with the remainder 1-1/16" in length (table 6). There was not as much 1-1/8" cotton as a few years ago, but Syria tried to remedy this deficiency in 1977. Syria's cotton must rate as high as, or higher, than that in any other country from the viewpoint of uniformity in staple length. Since more U.S. cotton is 1-3/32" in length than any other staple length, Syrian cotton fits into the same staple-length category of textile requirements as much of the U.S. crop.

Pressley fiber strength averages around 84,000 pounds per square inch, which is about average for the U.S. crop but well below that for some U.S. varieties. Micronaire readings are said to average 4.3, which would be virtually the same as for medium staple cotton in the United States.

The Cotton Bureau checks the quality of 10 percent of the bales for export to assure that type specifications are being met.

The Syrian standard bale is 200 kilograms. A check of Syrian statistics indicated bales weigh from 202 to 207 kilograms net.

A survey in 1977¹⁴ indicated a variety of bales were produced in Syria with gross weights ranging from 194 to 230 kilograms. Densities range from 386 to 578 kilograms per cubic meter. Some new bale presses have been installed in the last few years to turn out bales measuring 41 by 20 by 31 inches and weighing 230 kilograms, and bales measuring 55 by 21 by 28 inches and weighing 285 kilograms. Such bales have densities of 33-35 pounds per cubic foot, which would be comparable to U.S. high-density bales. In 1976 shipment of cotton in containers began in Syria.

Syria's Cotton Marketing Organization has been said to "deal precisely with such notoriously troublesome matters as letter-of-credit and shipping marks and to impart credibility to the time-worn assertion that the organization is there principally to serve the buyer"¹⁵. The Organization has developed a reputation for adhering to contracts and maintaining reasonable market policies. It invites agents and customers from abroad to Aleppo's annual cotton festival and to become acquainted with Syria's cotton and the industry producing it. It does a limited amount of advertising of Syrian cotton overseas, but has not yet become a member of the International Institute for Cotton. Syria is a member of the International Cotton Advisory Committee and sends representatives regularly to its annual meetings.

The Cotton Marketing Organization is reported to make a profit in some years. In others, as in 1974/75, it runs a deficit.

In setting its export selling price, the Cotton Marketing Organization follows reports from Liverpool, the New York Futures Market, and advice from its own agents. Its policy is not to carry much cotton into a new season. The remaining "free stock" on September 1, 1976, for instance, was only 8,614 metric tons.

Cotton is sold to the Communist countries, including the People's Republic of China, f.o.b. Lattakia. The buyer typically provides the ships. Cotton moving to the USSR sometimes goes by Black Sea ports and sometimes to Baltic ports. For cotton moving to Western Europe the CMO often sells c.&f. Shipping is arranged with shipping agents and moves at Conference rates. The freight cost per metric ton from Lattakia to LeHavre and Bremen was said to have risen from \$28-\$30 per metric ton in 1973 to \$60-\$70 in 1975.

The Cotton Marketing Organization appears on the whole to be well run and to perform its functions of ginning and marketing very capably. Farmers can no longer choose which gin to take their cotton to, nor bargain over prices as they did before the gins were nationalized. Perhaps it could be said that gin operators who are paid in wages no longer have the incentive the owners once had to economize on use of manpower and other cost items. The present system of rewarding farmers according to the quality of each sack of cotton delivered is impressive even though it takes its toll of man-hours. And overseas buyers of Syrian cotton, considering the grading system used in Syria, have considerable assurance of the quality of the cotton purchased.

¹⁴International Cotton Advisory Committee, Bale Standardization Survey, Dec. 4, 1977.

¹⁵Financial Times, November 18, 1976.

EXPORTS

For many years cotton was Syria's leading foreign exchange earner. From 1969 to 1973, receipts from cotton averaged around \$92 million annually, or 37 percent of total earnings from exports. Top position has now been taken by petroleum. Oil production began in 1968 and oil exports since then have risen steadily and rapidly from \$22 million in 1969 to \$642 million in 1975, quadrupling the total value of Syria's exports at the same time. Thus Syria is no longer as dependent on cotton exports for foreign exchange, which may affect future Government policy on how much cotton to grow. Nevertheless, cotton exports continue to make an important contribution to Syria's foreign income. In 1974, they totaled \$192 million, or one-fourth of total earnings; in 1975, \$118 million or 13 percent, and in 1976, \$164 million or 15 percent, (table 9). Syria's total exports of cotton averaged 579,000 bales annually during the 1960's and 533,000 during 1970/71-1974/75.

Foreign exchange derived from Syria's exports helps to pay for Syria's imports which are greatly in excess of exports. Imports consist largely of machinery, transport equipment, metal and metal products, including military equipment and agricultural products. In 1975 agricultural imports totaled \$348 million and included sugar, \$119 million; grains, \$55 million; milled products, \$25 million; dairy products and eggs, \$28 million; tobacco, \$22 million; and live animals and meat, \$13 million. The trade deficiency has been largely met with foreign aid, including major donations from Arab oil-producing countries, Iran, and Communist countries.

Two-thirds of Syria's cotton exports from 1973/74 to 1975/76 went to Communist countries, and over half in 1976/77. From 1960 to 1975, however, the proportion averaged about 55-60 percent. The USSR has been the most important

destination, taking usually from 125,000 to 150,000 bales annually, but only 54,000 in 1975/76 and 92,000 in 1976/77 (prelim.) (table 10). Although the USSR is a large exporter of cotton, it also imports moderate quantities; Syria is second only to Egypt as the most important supplier. The Soviet Union purchases cotton from Syria perhaps because cotton is one of the few items Syria can export in return for goods and services supplied by the USSR.

Syrian cotton exports to the People's Republic of China have averaged around 75,000 bales annually in recent years, but jumped to 215,000 bales in 1975/76. (Syria has purchased rice from the PRC.)

Syria also ships moderate amounts of cotton to Czechoslovakia and small quantities to Poland and Romania. However, these shipments represent only about 3 percent of the cotton purchased by East European countries which are largely supplied by the USSR.

Syria exports important quantities of cotton to Western Europe, shipping an average of about 200,000 bales annually. Shipments were down to 59,000 bales in 1974/75, recovered partially to 136,000 in 1975/76, and may have totaled about 180,000 in 1976/77. Italy is the most important destination in Western Europe. Varying but smaller amounts go to other countries in the EC and Western Europe.

Elsewhere in the world, Syria's formerly modest exports to Japan have declined to zero or near zero in the last few years. Some of the other Arabic countries take a little cotton.

With the textile industry in Syria expanding rapidly and with little if any expansion in cotton output over the last 10 years, it appears that Syrian exports of raw cotton may decline in the future unless there is a considerable increase in production as a result of the Al Thawra Dam.

TABLE 10.—IMPORTANCE OF COTTON IN SYRIA'S FOREIGN TRADE, 1969-76

(In million U.S. dollars)

Calendar year	Exports				Imports
	Cotton	Crude petroleum	Other	Total	
1969	79.8	21.7	105.3	206.8	369.4
1970	81.2	33.8	87.9	202.9	359.9
1971	82.2	46.1	78.2	206.5	446.1
1972	97.6	52.4	137.4	287.4	545.0
1973	117.3	76.2	157.5	351.0	613.0
1974	192.1	432.0	158.7	782.8	1,227.9
1975	118.6	642.4	169.0	930.0	1,685.1
1976	164.0	665.1	236.2	1,065.3	2,396.4

Compiled from International Monetary Fund: International Financial Statistics.

TABLE 11.—EXPORTS OF COTTON FROM SYRIA, BY COUNTRY OF DESTINATION,
YEARS BEGINNING AUGUST 1, 1960-76

(In 1,000 bales of 217.7 Kg)

Destination	Average			1970	1971	1972	1973	1974	1975	1976
	1960-64	1965-69	1970-74							
Eastern Europe										
Bulgaria	26	8	1	7	0	0	0	—	—	5
Czechoslovakia	25	12	40	21	33	39	51	54	33	34
German D.R.	4	2	5	0	12	0	7	7	10	(¹)
Hungary	10	20	3	5	5	0	4	0	—	—
Poland	24	26	10	10	9	9	21	0	9	(¹)
Romania	63	41	6	7	0	6	8	10	—	9
Subtotal	152	109	65	50	59	54	91	71	52	48
USSR	65	125	133	124	161	124	137	118	54	180
China, People's Republic of	116	95	77	73	69	75	130	37	215	129
Korea, Dem. P.R.	0	—	19	20	18	16	23	21	0	0
Total, foregoing countries	339	329	294	267	307	269	381	247	321	309
European Community										
Belgium-Luxembourg	5	6	4	2	13	6	1	1	1	7
France	78	53	27	58	29	18	21	7	10	31
Germany, Fed. Rep.	23	27	22	47	30	25	2	6	2	33
Italy	30	26	98	133	92	151	79	34	85	110
Netherlands	16	17	3	6	3	2	0	4	2	2
United Kingdom	9	1	2	1	(¹)	3	1	3	—	3
Subtotal	161	130	156	247	167	205	104	55	100	186
Other Western Europe										
Greece	1	1	(¹)	0	(¹)	2	0	0	0	15
Portugal	22	(¹)	(¹)	0	0	2	0	(¹)	3	18
Spain	3	22	8	14	0	14	9	3	18	17
Switzerland	4	5	16	21	25	23	9	1	8	27
Yugoslavia	9	6	13	14	0	10	39	0	7	(¹)
Total Western Europe	200	164	193	296	192	256	161	59	136	263
Other countries										
Algeria	0	0	4	0	0	11	0	7	0	0
Iraq	(¹)	0	16	0	0	0	11	69	0	25
Lebanon	23	2	3	3	1	4	4	1	(¹)	5
Hong Kong	9	5	(¹)	0	0	1	0	1	0	0
Japan	7	69	22	49	42	14	3	0	10	12
All other	1	16	1	(¹)	4	2	3	0	0	13
Grand Total	573	585	533	615	546	557	563	385	467	675

¹ Less than 500 bales.

Compiled from half monthly reports of Cotton Bureau, Ministry of Agriculture and Agrarian Reform, Aleppo.

Textile Industry

Syria's textile industry is one of the country's largest, employing 23,000 workers. It is largely concentrated in Damascus, Homs, and Aleppo. Much of the industry, including all of the cotton spinning, is nationalized and operates under the General Organization for Textile Industries ("Unitex") with headquarters in Damascus. Principal products of Unitex are cotton and synthetic yarns, woolen and mixed yarns, gray and printed cotton fabrics, "silk" fabrics, "silk" and woolen machine-made carpets, cotton and wool underwear, socks and stockings, and medical hydrophile cotton and gauze.

Unitex is rapidly expanding and modernizing under a program begun under the third Five-Year Plan, 1971-75, and continued in the fourth plan, 1976-1980. The number of cotton spindles, which rose from 165,000 in 1970 to 264,000 in 1975, is scheduled to increase by another 516,000 spindles by 1980. Textile machine manufacturers shipped 134,080 spindles to Syria in 1976.¹⁶ Commitments had already been made in 1975 for four large plants: One at Deir-ez-Zor (east side) and one at Homs, each to be completed by the end of 1976 and to produce 8,000 tons annually of 8.5's and 24's count yarn; one at Jableh (Lattakia), to be finished by the end of 1977 which will produce 10,000 tons of 24's and 36's count yarn; and a fourth plant at Idlib, to be completed at the end of 1979 and to produce 21,000 tons of 16's yarn. Each of the first three plants was to have 75,000 spindles, and the last one is to have 20,000 open-end rotors. Reportedly there were 2,800 open-end rotors in the country in 1974.

The 8.5's yarn is for use in bed covers and sheets and some knitting; the 16's is for use in denim; and the 36's for use in knitting and for fabrics including polyester blends for dresses, shirts, and underwear. The new spinning capacity is being installed with the assistance of several countries, including PRC, Czechoslovakia, Federal Republic of Germany, German Democratic Republic, and France.

The expansion also includes additional weaving units, wool spinning units, a wool washing plant, and knit goods and garment factories.

Most of the textile output of Syria at present, however, comes from private plants, which are particularly active in weaving and knitting.

Expansion in spinning capacity, it is expected, will increase the proportion of Syrian cotton production spun locally from about 25 percent in 1975 to 80

percent upon completion of present plans. As in a number of other developing countries, the apparent objective is to process domestic raw materials at home and export the manufactured products instead of exporting the raw materials, in order to benefit from the additional employment and processing revenue. Syria plans to become an exporter of cotton yarn and hopes later to export products that represent further processing.

With the expansion of the textile industry in Syria, mill consumption of cotton has been rising quite rapidly. It has mounted from 50,000 bales in 1957/58, to 100,000 bales in 1965/66, 150,000 bales in 1973/74, and totaled 171,000 bales in 1975/76. It is likely to surpass 200,000 bales in 1977/78. Present plans call for consumption of 550,000 bales in 1980, although it now appears it will be difficult to reach this goal so rapidly.

Cotton comprised two-thirds of the fiber consumed in Syrian mills in 1974, the last year for which data are available. Wool accounted for 5 percent, rayon for 10 percent, and synthetic fibers 18 percent.

Textile Trade

Exports of cotton yarn and other textiles grew in the early 1970's, totaling 11,200 metric tons on a raw cotton equivalent basis in 1973, compared with mill consumption of 35,900 tons. The world textile recession caused a setback in 1974, followed by partial recovery in 1975.

Syria has been exporting cotton yarn to the USSR and German Democratic Republic, and some cotton textiles to Saudi Arabia. The United States imported 7.0 million equivalent square yards of cotton manufactures in 1974, 5.0 million in 1975, and 17.1 million (largely clothing) in 1976 of Syrian origin.

Manmade Fibers

Syria produces no manmade fibers and imports the rayon and synthetics used. Exports and imports in manufactures of these fibers are limited.

Syria's domestic consumption of textiles has more than kept up with the gain in population, which rose 17.4 percent from 1970 to 1975. Per capita consumption of fibers totaled 7.2 kilograms in 1973, which compares with 6.9 for Turkey, 4.9 for the entire developing Near East, 24.9 for the United States, and 7.1 for the world.

Consumption of synthetic fibers is now several times the level of a few years ago, but domestic cotton consumption has continued to rise. In 1975, approximately 64 percent of the supply of textiles for domestic consumption was cotton, 5 percent wool, 12 percent rayon, and 19 percent synthetic fibers.

¹⁶International Federation of Cotton and Allied Textile Industries, International Cotton Industry Statistics Supplement, Vol. 3, 1976.

TABLE 12.—SYRIA: MILL CONSUMPTION OF TEXTILE FIBERS AND TEXTILE TRADE BALANCE
1960, 1965, 1967, 1970-76
(In 1,000 metric tons)

Item	1960	1965	1967	1970	1971	1972	1973	1974	1975	1976
Mill consumption										
Cotton ¹	12.8	20.9	22.1	24.7	29.1	35.8	36.3	35.0	38.6	37.7
Wool ²	.4	1.5	2.7	3.6	3.3	2.3	1.8	2.6	—	—
Rayon ²	11.4	7.2	5.2	6.2	5.2	8.1	9.5	5.3	—	—
Synthetics ²	—	1.3	1.4	4.8	2.6	4.4	7.8	9.5	—	—
Total	24.6	30.9	31.4	39.3	40.2	50.6	55.4	52.4	—	—
Textile trade balance (raw fiber equivalent)										
Cotton ²	-1.3	0.3	+1.4	-1.2	-0.2	-2.3	-5.6	-0.5	³ -3.8	—
Wool ²	+3.2	+1.6	+1.3	+1.4	+1.2	+1.7	+1.0	-1.4	—	—
Rayon ²	-2.3	-1.4	-1.6	-1.1	-1.6	-1.6	-1.6	-1.5	—	—
Synthetics	—	+8	+1	+4	+8	+1.9	+6	+1.5	—	—
Total	-4	+7	+1.2	-5	+2	-3	-5.6	+1.3	—	—

¹ FAS. ² FAO, Per Caput Fibre Consumption, 1974 and earlier compilations. ³ Preliminary.

TABLE 13.—PER CAPITA CONSUMPTION OF TEXTILE FIBERS IN SYRIA, WITH COMPARATIVE
DATA FOR NEAR EAST, WESTERN EUROPE AND WORLD, 1960-65, 1970-75¹

Area and calendar year	Cotton	Wool	Manmade			All fibers	Popula- tion	Per capita NDP ¹
			Cellulosic	Synthetic	Total			
	<i>Kg</i>	<i>Kg</i>	<i>Kg</i>	<i>Kg</i>	<i>Kg</i>	<i>Kg</i>	<i>Millions</i>	<i>Syrian pounds</i>
Syria								
1960	2.5	0.6	1.6	0	1.6	4.7	4.53	624
1965	3.7	.6	1.1	.4	1.5	5.8	5.32	801
1970	3.9	.8	.8	.9	1.7	6.4	6.25	859
1971	4.6	.7	.6	.5	1.1	6.4	6.45	916
1972	5.1	.6	1.0	.9	1.9	7.6	6.67	979
1973	4.3	.4	1.2	1.2	2.4	7.1	6.89	960
1974	4.9	.6	.7	1.5	2.2	7.1	7.10	1,111
1974 (Prelim.)	5.3	.4	1.0	1.6	2.6	8.3	7.35	1,351
Near East, developing ²								
1965	2.7	.5	.8	.1	.9	4.2	146.79	—
1974	3.4	.4	.7	.9	1.6	5.4	189.62	—
Western Europe								
1965	4.8	1.6	2.6	1.7	4.3	11.1	342.47	—
1974	4.9	1.2	2.4	5.5	7.9	14.0	363.13	—
World								
1965	3.2	.5	1.0	.6	1.6	5.5	3,362.00	—
1974	3.3	.4	.9	2.0	2.9	6.6	3,891.00	—

¹ Net domestic product at constant 1963 prices.

² Including Egypt, Libya, Sudan, Afghanistan, Jordan, Cyprus, Iran, Iraq, Lebanon, Saudi Arabia, Syria, and Turkey.

Compiled from "Per Caput Fibre Consumption", 1973-74, FAO, 1 July 1976, and earlier volumes in same series. NDP data from Statistical Abstract of Syria, 1976.

TABLE 14.-SYRIA: NUMBER OF SPINDLES AND LOOMS, AND PRODUCTION, IMPORTS AND EXPORTS
OF COTTON YARN AND FABRICS, 1960, 1965-75, 1980

Year	Spindles	Looms	Yarn			Fabric		
			Production	Exports	Imports	Production	Exports	Imports
1960	Number 116,300	Number 4,557	12.4	1.3	1.2	10.3	1.8	1.1
1965	154,700	3,850	18.0	.3	.8	12.1	2.9	.6
1966	154,700	3,850	18.2	.4	1.2	11.7	2.8	1.0
1967	166,500	3,850	17.0	.4	1.0	11.3	2.6	.6
1968	167,800	3,765	19.6	1.1	1.1	12.1	1.5	.2
1969	167,600	3,765	19.7	.7	1.8	12.7	1.6	.4
1970	167,600	3,775	19.6	.9	1.3	12.1	1.8	.2
1971	187,300	3,781	22.8	1.9	2.3	12.5	2.4	.3
1972	187,300	3,781	27.5	3.0	1.5	13.8	3.2	.9
1973	239,600	3,896	27.7	4.8	.8	13.5	2.7	.3
1974	271,300	1 3,750	30.4	1.5	.7	13.9	1.9	.5
1975	272,000	1 3,750	30.6	3.5	(2)	14.1	1.4	—
1980 plan	—	4,313	103.0	57.3	—	—	3.9	—

¹ Automatic looms. There probably is a substantial number of ordinary looms. ² 5 tons.

From Syrian General Organization of the Textile Industry (UNITEX).

